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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,177	08/01/2003	Kevin Gordon JR.	STE-023.01	4889

25181 7590 04/12/2006

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EXAMINER	
KOCH, GEORGE R	
ART UNIT	**PAPER NUMBER**
1734	

DATE MAILED: 04/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/633,177	GORDON, KEVIN	
	Examiner	Art Unit	
	George R. Koch III	1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10 and 12-30* is/are pending in the application.

4a) Of the above claim(s) *16-30* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10, 12-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/3/2006 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-10 and 12-15 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. It is unclear whether the clause "wherein in the event" in claim 1 sets forth a mandatory limitation or an optional limitation. It is possible that "wherein in the event" sets forth an optional limitation, since it does not appear to require that the event positively occur. The subsequent rejections address both possibilities.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 5, 8, 9 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Peter (US Patent 4,631,685).

Peter discloses a method for ultrasonic welding of parts by means of an ultrasonic welding device comprising at least a generator (supply 62 and interface 66), a converter (head 46), and a sonotrode (horn 48), based on a set curve of a time dependent welding parameter appropriate to a welding connection meeting set requirements (for example, as shown in Figure 5), and where the welding duration corresponding to the set curve runs between a starting time t_0 to an end time t_e (in Peter, this is referred to as time t_4). Peter also discloses comparing actual data with the set curve (see columns 3 and 4), and also the amplitude and frequency (see time, and displacement measurements, figure 7). Peter discloses measuring the parameter of weld energy (which is related to power) against the time (signals 68 and 69).

While Peter discloses comparing data, one in the art would appreciate that curves and data points are interchangeable in a control environment, especially one that uses a PC as in applicant's specification. Since a PC (see applicant's Figure 6) cannot literally compare curves, and merely stores data points and processing operations that represent a curve, the language of comparing "curves" is being interpreted as meaning comparing data points representing curves. Therefore, Peter, which discloses monitoring data parameters to set data parameters which is, since data points represent

curves, also an actual curve comparison with set curve. Therefore, Peter is being interpreted as disclosing actual curves being compared with set curves.

Peter suggests using the welding displacement (Figure 7, items 88 and 90) and the energy (item 94) as a variable.

The "wherein in the event" clause is considered to be an optional limitation.

As to claim 5, Peter discloses changing at least one process parameter (see abstract for disclosure of changing the displacement).

As to claim 8, Peter makes successive measurements which are used as inputs to changing the functioning.

As to claim 9, Peter (columns 3-5) discloses the concept of measuring a parameter at various time-points.

As to claim 12, Peter modifieds a welding parameter singly (the welding displacement).

Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 2-7, 9-10, and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peter (US Patent 4,631,685) as applied to claim 1 above, and further in view of DE 34 29 776.

Furthermore, as to the final 4 lines of claim 1 (directed to the parameters), Peter does not suggest measuring the emitter/received power as the time dependent welding parameter. However, Peter does measure energy (which is related to power) against the time (signals 68 and 69). Furthermore, DE 34 29 776 discloses that controlling based on the emitted/received power allows for improved quality control(see columns 3-5, especially column 5, lines 4-48, which model in hardware the structures for heat compensation, based on power). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilize a power control system as by DE 34 29 776 in the apparatus of Peter in order to ensure proper energy supply to the weld pieces in order to achieve a good weld result.

As to claim 2, 3 and 4, DE 34 29 776 as incorporated would result in a method that compares and compensates the actual curve with the set curve for all times between the start and finish. As a result of this, the references would compare for identical power values and identical energy inputs.

As to claim 5, Peter discloses changing at least one process parameter (see abstract for disclosure of changing the displacement). Furthermore, DE 34 29 776 as incorporated discloses adjustment based on actual curves to set curves, via a hardware digital control system.

As to claim 6, the result of the incorporation of the hardware control system of DE 34 29 776 in claim 1 above is to change the process parameters gradually over time as a result of the measurement, or compensation, for heat loss.

As to claim 7, DE 34 29 776 power control method is a regulation process.

As to claim 9, Peter (columns 3-5), and DE 34 29 776, as incorporated disclose the concept of measuring a parameter at various time-points. DE 34 29 776 discloses comparison of a set curve to actual curve comparison (as shown in Figure 5).

As to claim 10, Peter does not suggest measuring the emitter/received power as the time dependent welding parameter. However, Peter does measure energy (which is related to power) against the time (signals 68 and 69). Furthermore, DE 34 29 776 discloses that controlling based on the emitted/received power allows for improved quality control(see columns 3-5, especially column 5, lines 4-48, which model in hardware the structures for heat compensation, based on power). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilize a power control system as by DE 34 29 776 in the apparatus of Peter in order to ensure proper energy supply to the weld pieces in order to achieve a good weld result.

As to claim 14 and 15, DE 34 29 776 as incorporated would allow for the welding to be regulated over its full duration, including at least a part of its duration, based on the respective current difference between the set curve and actual curve.

9. Claims 1 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peter and DE 34 29 776 as applied to claim 1 above, and further in view of Grewell.

This rejection applies if the "wherein in the event" clause is read as optional.

As to claim 1, Peter suggests changing the welding displacement and energy. Furthermore, DE 34 29 776 as incorporated utilizes the changes resulting from

measuring the power to change the energy supplied to the sealing jaws which also relates to the force acting on the parts and the energy input into the parts welded. However, the references do not suggest all of the variables.

Grewell '706 further suggests varying the motional amplitude (i.e., amplitude of the sonotrode - see columns 1-3) and also discloses varying the frequency (see Figure 6, which shows the frequency being varied). Grewell '706 suggests that variation of the amplitude and frequency results in a stronger weld. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the claimed variables in order to achieve a stronger weld.

As to claim 13, Grewell '706 (see Figure 6) as incorporated in claim 11 above suggest modifying both the frequency and amplitude jointly in order to achieve a stronger weld.

10. Claims 1-10, 12, and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peter (US Patent 4,631,685) in view of the translation of DE 34 39 776, and Van Brakel (EP 0 319 631)

This rejection applies if the "wherein in the event" clause in claim 1 is read as a required claim limitation.

Peter discloses a method for ultrasonic welding of parts by means of an ultrasonic welding device comprising at least a generator (supply 62 and interface 66), a converter (head 46), and a sonotrode (horn 48), based on a set curve of a time

dependent welding parameter appropriate to a welding connection meeting set requirements (for example, as shown in Figure 5), and where the welding duration corresponding to the set curve runs between a starting time t_0 to an end time t_e (in Peter, this is referred to as time t_4). Peter also discloses comparing actual data with the set curve (see columns 3 and 4), but does not disclose comparing an actual curve, and does not disclose, depending on the existing difference between the set curve and the actual curve, of at least one welding process parameter affecting welding being altered to a value based on that existing difference such that an equalization of the set curve and the actual curve occurs during further welding.

However, one in the art would appreciate that curves and data points are interchangeable in a control environment, especially one that uses a PC as in applicant's specification. Since a PC (see applicant's Figure 6) cannot literally compare curves, and merely stores data points and processing operations that represent a curve, the language of comparing "curves" is being interpreted as meaning comparing data points representing curves. Therefore, Peter, which discloses monitoring data parameters to set data parameters which is, since data points represent curves, also an actual curve comparison with set curve. Therefore, Peter is being interpreted as disclosing actual curves being compared with set curves. Furthermore, DE 34 29 776 discloses comparison of actual welding energy curves with set welding curves. DE 34 29 776 discloses that these comparisons ensure proper quality control (see page 1 of the translation). Therefore, it would have been obvious to one of ordinary skill in the art

at the time of the invention to have utilized set curve to actual curve comparisons as in DE 34 29 776 in order to ensure proper quality control.

Furthermore, Van Brackel discloses that it is known, in response in the monitoring of the ultrasonic cleaning or welding parameters (see claims 4, and 11) such as voltage and current (see abstract) and that the method of operating the ultrasonic machine can include steps of adjusting the welding voltage and current, and that these steps are performed by various digital controls (see columns 3-4). This adjustment would adjust the frequency or pulse width of the ultrasonic oscillator and make the real point equal to the set point. Van Brackel discloses that this adjustment keeps the power output at the desired output and ensures this satisfactory power input (see especially column 2, line 38 to column 3, line 6). Van Brackel also discloses that this digital control system is faster and more accurate, and easier to control (see column 4, lines 31-41). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to ensure satisfactory power input and faster, more accurate control of the input.

As to the final 4 lines of claim 1, Peter suggests using the welding displacement (i.e., amplitude, see Figure 7, items 88 and 90) and the energy (item 94) as a variable. Additionally, Van Brackel as incorporated suggests using frequency of the oscillator as the welding variable (see column 1, lines 47-49).

As to claim 2, 3 and 4, DE 34 29 776 and Van Brackel as incorporated would result in a method that compares and compensates the actual curve with the set curve

for all times between the start and finish. As a result of this, the references would compare for identical power values and identical energy inputs.

As to claim 5, Peter discloses changing at least one process parameter (see abstract for disclosure of changing the displacement). Furthermore, DE 34 29 776 and Van Brackel as incorporated discloses adjustment based on actual curves to set curves, via a hardware digital control system.

As to claim 6, the result of the incorporation of the hardware control system of DE 34 29 776 and Van Brackel in claim 1 above is to change the process parameters gradually over time as a result of the measurement, or compensation, for heat loss.

As to claim 7, Van Brackel's power control method is a regulation process.

As to claim 8, Peter makes successive measurements which are used as inputs to changing the functioning.

As to claim 9, Peter (columns 3-5), DE 34 29 776, and Van Brackel as incorporated disclose the concept of measuring a parameter at various time-points. (This is inherent in Van Brackel, since it always reads the current and voltage). Van Brackel as incorporated discloses utilizing a regulation process, and DE 34 29 776 discloses comparison of a set curve to actual curve comparison (as shown in Figure 5).

As to claim 10, Peter does not suggest measuring the emitter/received power as the time dependent welding parameter. However, Peter does measure energy (which is related to power) against the time (signals 68 and 69). Furthermore, DE 34 29 776 discloses that controlling based on the emitted/received power allows for improved quality control(see columns 3-5, especially column 5, lines 4-48, which model in

hardware the structures for heat compensation, based on power). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilize a power control system as by DE 34 29 776 in the apparatus of Peter in order to ensure proper energy supply to the weld pieces in order to achieve a good weld result. Additionally, Van Brackel discloses modifying the frequency (abstract, column 2).

As to claim 12, Peter modifieds a welding parameter singly (the welding displacement).

As to claim 14 and 15, DE 34 29 776 and Van Brackel as incorporated would allow for the welding to be regulated over its full duration, including at least a part of its duration, based on the respective current difference between the set curve and actual curve.

11. Claims 1 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peter, DE 34 29 776 and Van Brackel as applied to claim 1 above, and further in view of Grewell.

As to claim 1, Peter as applied abovesuggests changing the welding displacement and energy. Van Brackel suggests frequency. Furthermore, DE 34 29 776 and Picchio as incorporated utilizes the changes resulting from measuring the power to change the energy supplied to the sealing jaws which also relates to the force acting on the parts and the energy input into the parts welded. However, the references do not suggest all of the variables.

Grewell '706 further suggests varying the motional amplitude (i.e., amplitude of the sonotrode - see columns 1-3) and also discloses varying the frequency (see Figure 6, which shows the frequency being varied). Grewell '706 suggests that variation of the amplitude and frequency results in a stronger weld. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the claimed variables in order to achieve a stronger weld.

As to claim 13, Grewell '706 (see Figure 6) as incorporated in claim 11 above suggest modifying both the frequency and amplitude jointly in order to achieve a stronger weld.

Response to Arguments

12. Applicant's arguments with respect to claims 1-10 and 12-15 have been considered but are moot in view of the new ground(s) of rejection.

13. Van Brackel has bee applied to show the concepts of comparing and altering/adjusting a welding parameter.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (571) 272-1230 (TDD only). If the applicant cannot make a direct TDD-to-TDD call, the applicant can communicate by calling the Federal Relay Service at 1-866-377-8642 and

giving the operator the above TDD number. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

George R. Koch III
Primary Examiner
Art Unit 1734

GRK
3/30/2006